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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
NEGRELLI, KARA B				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/588,759

Applicant(s)

ORTALDA, MARCO

Examiner

KARA NEGRELLI

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

TIN AND TRANSITION METAL FREE POLYURETHANE FOAMS

Response to Amendment

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Any rejections stated in the previous Office Action and not repeated below are withdrawn.
3. The new grounds of rejection set forth below are necessitated by applicant's amendment filed on February 26, 2009. In particular, claim 1 has been amended to require the presence of a tertiary amine catalyst and to recite "at least one of" the recited components; claims, 2, 3, and 5-7 have been amended to be consistent with the amendment of claim 1; and newly presented claims 10-19 have been added.
4. It is noted that the newly introduced limitations were not present at the time of the preceding action. For this reason it is proper to make the present action FINAL.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 5-7, 10-11, 15, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clatty (US 2003/0166735).

7. As to claims 1, 2, 6-7, 15, and 17-18, Clatty teaches a polyurethane foam produced by reacting an isocyanate group (paragraph [0043]), an isocyanate-reactive compound (paragraph [0043]), and a suitable catalyst of which can comprise a bismuth carboxylate catalyst (paragraph [0053]), certain tertiary amine catalysts (paragraph [0052]), or said catalyst of which may be a mixture of catalysts which can include both bismuth carboxylate catalysts and tertiary amine catalysts (paragraph [0054]). Other suitable bismuth compounds, as taught by Clatty, for use as the catalyst include bismuth neodecanoate (paragraph [0053], pertaining to instant claim 15). The foams disclosed by Clatty have a densities of 8 to 55 lbs/ft³ (paragraph [0075]), and said catalyst of which is present in an amount from about 0.01 to about 7%, based on total weight of isocyanate-reactive component, preferably said catalyst in the amount from 0.5 to 6%, and even more preferably said catalyst of which is present in the amount of 1 to 5% (paragraph [0055]). Since the catalysts taught by Clatty *may* be used as mixtures (paragraph [0054]), one of ordinary skill in the art would recognize that bismuth carboxylate could be the sole organic metal catalyst used in said polyurethane foam. Clatty fails to teach the use of said rigid foam in a shoe sole.

8. While there is no disclosure that the polyurethane foam of Clatty is used as a shoe sole, as presently claimed, applicants attention is drawn to MPEP 2111.02 which states that "if the body of a claim fully and intrinsically sets forth all the limitations of the claimed invention, and the preamble merely states, for example, the purpose or

intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction". Further, MPEP 2111.02 states that statements in the preamble reciting the purpose or intended use of the claimed invention must be evaluated to determine whether the purpose or intended use results in a structural difference between the claimed invention and the prior art. Only if such structural difference exists, does the recitation serve to limit the claim. If the prior art structure is capable of performing the intended use, then it meets the claim.

9. It is the examiner's position that the preamble does not state any distinct definition of any of the claimed invention's limitations and further that the purpose or intended use, i.e. a shoe sole, recited in the present claims does not result in a structural difference between the presently claimed invention and the polyurethane foam taught in Clatty and further that the prior art structure which is a polyurethane foam identical to that set forth in the present claims is capable of performing the recited purpose or intended use.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clatty (US 2003/0166735). Clatty teaches the rigid polyurethane foam as applied to claim 1 above, and further teaches the use of various bismuth carboxylates known in the art as catalysts (paragraph [0053]). One of ordinary skill in the art would recognize that the various bismuth catalysts could include those which result from carboxylic acids having from 6 to 12 carbon atoms.

11. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clatty (US 2003/0166735).

12. Clatty teaches the polyurethane foam as applied to claim 1 in which the catalyst(s) are present in an amount of from 0.01 to 7% by weight, based on the weight of the isocyanate reactive component (the polyol), preferably from 0.5 to 6%, and most preferably from 1 to 5% (paragraph [0055]).

13. Claims 3 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clatty (US 2003/0166735) further in view of Londrigan et al (US 5,405,884). Clatty teaches the rigid, close-celled polyurethane foam as applied to claim 1 above. Clatty fails to teach the production of a polyurethane foam comprising a reaction which includes carboxylates and amines in a ratio of 0.005:1 to 0.5:1. However, Londrigan et al (US 5,405,884) teach a rigid polyisocyanurate foam made from a reaction comprising a polyisocyanate and a polyol, in the presence of a catalyst and blowing agent (column 2, line 65- column 3, line 2), said catalyst comprises an organic acid metal salt and a tertiary amine in a ratio of less than 3:1 (column 5, lines 44-47). It would have been obvious for one of ordinary skill in the art at the time the invention was made to use a catalyst comprising an organic metal salt and tertiary amine in a ratio of less than 3:1 in a polyurethane foam because using this molar ratio optimizes the mechanical properties of said foam, in particular, the molar ratio of the organic acid metal salt to the tertiary amine is chosen to optimize the fire performance of the foams (column 5, lines 35-38).

14. The foams of Clatty et al. optionally require a flame retardant (paragraphs [0058] – [0059]). Using the catalysts specified by Londrigan et al., the use of a flame retardant would be minimized.

15. Claims 4 and 9 are rejected under 103(a) as being unpatentable over Clatty (US 2003/0166735).

16. Clatty teaches the polyurethane foam as applied to claim 1 above, but fails to teach that said foam in an "integral" polyurethane foam. However, one of ordinary skill in the art would recognize that an integral product could be made from the foam disclosed by Clatty.

17. Claims 4 and 9 are rejected under 103(a) as being unpatentable over Clatty (US 2003/0166735) and further in view of Volkert et al (US 6,331,577 B1).

18. Clatty teaches the polyurethane foam as applied to claim 1 above, but fails to teach that the polyurethane foam is an integral polyurethane foam. However, Volkert et al (6,331,577 B1) teach flexible integral polyurethane foams for use in shoe soles (column 1, lines 6-11). It would be obvious for one of ordinary skill in the art to use the integral polyurethane foam of Volkert in the invention of Clatty because integral polyurethane foams have high elastic qualities and said foams also do not shrink at low densities (less than 400 g/L), (Volkert, column 2, lines 25-28). These qualities would be beneficial for a rigid, close-celled foam (said foams of which have densities of less than 400 g/L) with good physical properties (Clatty (US 2003/0166735, paragraph [0017]))

such as that taught by Clatty. High elasticity and low shrinkage both contribute to "good physical properties."

19. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clatty (US 2003/0166735) and further in view of Priest (US 4,282,331).

20. Clatty teaches the composition as applied to claim 1 above but fails to teach that the isocyanate reactive component (the polyol) is a graft polyol derived from a combination of monomers comprising styrene and acrylonitrile in a ratio of from 1:1 to 1:3, grafted on a polyetherol or polyesterol, and wherein said graft polyol further comprises a macromer.

21. However, Priest teaches a novel process for producing polymer/polymers characterized by their convertibility to low density, water-blown polyurethane foams having reduced scorch (Priest, Abstract), said process of which employs a reaction mixture comprising from 33 to 75 weight percent of acrylonitrile and from 25 to 67 weight percent of styrene, based on the total weight of those materials and further comprising a liquid polyol (macromer) (column 47 – 59), said polyol of which can comprise an alkylene oxide adducts of polyhydroxyalkanes; an alkylene oxide adducts of non-reducing sugars and sugar derivatives; an alkylene oxide adducts of phosphorous and polyphosphorous acids; or an alkylene oxide adducts of polyphenols (column 2, line 64 - column 3, line 3).

22. It would have been obvious for one of ordinary skill in the art to use the polymer/polyol mixture taught by Priest when producing the rigid polyurethane of Clatty

because using a higher percentage of acrylonitrile as a monomer component forms polymer polyols having superior load-bearing capacities and higher stability (Priest, US 4,282,331, column 4, lines 21-24). Styrene has a high reactivity with acrylonitrile and is low in cost (Priest, US 4,282,331, column 4, lines 24-26). High stability and superior load-bearing capacities are both qualities that would lend to the RIM process for the production of rigid polyurethane foams with good physical properties (Clatty, US 2003/0166735 paragraph [0017]).

23. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clatty (US 2003/0166735) and further in view of Burckhardt et al. (US 2006/0180274).

24. Clatty teaches the composition as applied to claims 1 and 6 but fails to teach that prior to reaction, the bismuth catalyst is dissolved in a carboxylic acid. However, Burckhardt et al. teach polyurethane compositions prepared from at least one polyisocyanate, at least one polyol, and at least one catalyst system which is obtainable from at least one bismuth compound and at least one nitrogen compound (paragraph [0007]). The bismuth catalyst to be used in the invention of Burckhardt et al. include bismuth carboxylates, namely acetate, oleate, octoate or neodecanoate (paragraph [0022]). The bismuth compound can be used in the form of a powder or liquid, or a solution (paragraph [0023]). In a preferred embodiment, before its addition to the polyurethane composition, the catalyst system is prepared in an inert medium such as a plasticizer or a solvent (paragraph [0025]). Burckhardt et al. further teach the use of

bismuth tris(neodecanoate) in neodecanoic acid as a catalyst system in a polyurethane foam (paragraph [0047]).

25. It would have been obvious for one of ordinary skill in the art to use the catalyst system of Burckhardt in the polyurethane foam of Clatty because using the catalyst system described above in the reaction of the at least one polyisocyanate with the at least one polyol, markedly increase the reaction time without leading to increased problems with storage stability of the prepolymers (paragraph [0046]). This results in shorter preparation times of the polyurethane foams, and further results in products, formulated from the polyurethane composition disclosed by Burckhardt, which can be stored for a longer time without any substantial increase in viscosity (paragraph [0046]).

Response to Arguments

26. Applicant's arguments filed February 26, 2009 have been fully considered but they are not persuasive.

27. Applicant's arguments with respect to claims 1, 2, 6, 7, 9 and claim 5 have been considered but are moot in view of the new ground(s) of rejection.

28. Applicant argues that the composition taught by Clatty (US 2003/0166735) would not have applicability as shoe sole. However, in claims 1-18, the recitation "*a shoe sole*" has been given little patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process

steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

29. In the instant case, the preamble merely recites the intended use of the composition, wherein the prior art can meet this future limitation by merely being capable of such intended use. Instant claim 1 contains absolutely no structure. Because there is no structure being claimed that is necessary to make a shoe sole, and because Clatty is drawn to molded polyurethane products (paragraph [0073]), and because shoe soles are a molded product, it is the examiner's position that the invention of Clatty is capable of being used to produce a shoe sole.

30. The invention of Clatty is drawn not only to the polyurethane composition, but also to a reaction injection molding process for molded foams prepared from said polyurethane composition (paragraphs [0017] and [0073]). In the mold, the foamable reaction mixture foams to form a molded product (paragraph [0073]), and the molded products have densities comparable to shoes soles (as shown in the rejection of instant claims 4 and 9 over Clatty in view of Volkert), and the foams have a Shore hardness of at least 40 and preferably of from 50 to 75 (Clatty, paragraph [0075]). Because of these properties, it is the examiner's position that the composition of Clatty is capable of being used to produce a shoe sole.

31. Applicant further argues that Londrigan et al. does not disclose a bismuth carboxylate, so that the ratio therein is irrelevant. Londrigan et al (US 5,405,884) teach a rigid polyisocyanurate foam made from a reaction comprising a polyisocyanate and a

polyol, in the presence of a catalyst and blowing agent (column 2, line 65- column 3, line 2), said catalyst comprises an organic acid metal salt and a tertiary amine is a ratio of less than 3:1 (column 5, lines 44-47).

32. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

33. Applicant further argues that it would not have been obvious to combine Volkert and Clatty because Clatty is drawn to a rigid polyurethane foam while Volkert is drawn to a flexible polyurethane foam. However, note that while Volkert does not disclose all the features of the present claimed invention, Volkert is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, an integral foam shoe sole, and in combination with the primary reference, discloses the presently claimed invention.

34. While Volkert teaches a "flexible" foam and Clatty teaches a "rigid" foam, these terms are relative terms and one of ordinary skill in the art would know that rigid foams and flexible foams can be used to produce the same end products. Further, because the terms "rigid" and "flexible" are relative terms and can have the same or overlapping meanings, the references are properly combinable. In addition, it would be obvious for

one of ordinary skill in the art to use the integral polyurethane foam of Volkert with the polyurethane foams of Clatty because integral polyurethane foams have high elastic qualities and said foams also do not shrink at low densities (less than 400 g/L), (Volkert, column 2, lines 25-28). The foams taught by Clatty et al. have a density (8 lbs/ft³ to 55 lbs/ft³, or about 128 to about 881 g/L) comparable to that taught by Volkert (80 to 700 g/l). Furthermore, the foam of Clatty is described as having "good physical qualities," (Clatty (US 2003/0166735, paragraph [0017])), and the foam disclosed by Volkert has high elasticity and low shrinkage, which both contribute to "good physical properties." For these reasons, applicants' arguments are not persuasive.

Conclusion

35. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

36. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARA NEGRELLI whose telephone number is (571)270-7338. The examiner can normally be reached on Monday through Friday 8:00 am EST to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571)272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/KARA NEGRELLI/

Examiner, Art Unit 1796

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